We claim:

Claims

1. An isolated nucleic acid molecule selected from the group consisting of:
(a) nucleic acid molecules which hybridize under stringent conditions to a nucleic acid molecule having a nucleotide sequence set forth as SEQ ID NO:42, and which code for a sarcoma associated gene product,
(b) deletions, additions and substitutions of the nucleic acid molecules of (a), which code for a sarcoma associated gene product,
(c) nucleic acid molecules that differ from the nucleic acid molecules of (a) or (b) in codon sequence due to the degeneracy of the genetic code, and
(d) complements of (a), (b) or (c).

2. The isolated nucleic acid molecule of claim 1, wherein the isolated nucleic acid molecule comprises the nucleic acid sequence set forth as SEQ ID NO:1.

3. The isolated nucleic acid molecule of claim 1, wherein the isolated nucleic acid molecule comprises the nucleic acid sequence set forth as nucleotides 208-2151 of SEQ ID NO:42.

4. The isolated nucleic acid molecule of claim 1, wherein the isolated nucleic acid molecule comprises the nucleic acid sequence set forth as SEQ ID NO:42.

5. An isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 and nucleotides 208-2151 of SEQ ID NO:42.

6. An isolated nucleic acid molecule selected from the group consisting of:
(a) an unique fragment of the nucleotide sequence set forth as nucleotides 1-2340 of SEQ ID NO:42 between 12 and 2339 nucleotides in length, and
(b) complements of (a).

7. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is at least 14 contiguous nucleotides.

8. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is at least 16 contiguous nucleotides.

9. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is at least 18 contiguous nucleotides.

10. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is at least 20 contiguous nucleotides.

11. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is at least 22 contiguous nucleotides.

12. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is at least 25 contiguous nucleotides.

13. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is at least 30 contiguous nucleotides.

14. The isolated nucleic acid molecule of claim 6, wherein the isolated nucleic acid molecule is between 12 and 32 contiguous nucleotides.

15. An expression vector comprising the isolated nucleic acid molecule of any of claims 1-14 operably linked to a promoter.

16. A host cell transformed or transfected with the expression vector of claim 15.

17. An isolated polypeptide encoded by the isolated nucleic acid molecule of any of claims 1-5.

18. An isolated polypeptide comprising a fragment of the polypeptide of claim 17 at least 9 amino acids in length.

19. The isolated polypeptide of claim 18, wherein the fragment binds to a polypeptide-binding agent.

20. The isolated polypeptide of claim 19, wherein the fragment binds to an antibody or a cytotoxic T lymphocyte.

21. An isolated polypeptide which selectively binds a protein encoded by the isolated nucleic acid molecule of any of claims 1-5.

22. The isolated polypeptide of claim 21, wherein the isolated polypeptide is an Fab or $F(ab)_2$ fragment of an antibody.

23. The isolated polypeptide of claim 21, wherein the isolated polypeptide is a fragment of an antibody, the fragment including a CDR3 region selective for the protein.

24. The isolated polypeptide of claim 21, wherein the isolated polypeptide is an antibody selected from the group consisting of monoclonal antibodies, humanized antibodies and chimeric antibodies.

25. A method for diagnosing a disorder characterized by expression of a tumor associated nucleic acid molecule, comprising:
contacting a biological sample isolated from a subject with an agent that is specific for the tumor associated nucleic acid molecule, wherein the tumor associated nucleic acid molecule hybridizes under stringent conditions to a molecule having a nucleotide sequence set forth as SEQ ID NO:42, and
determining the interaction between the agent and the tumor associated nucleic acid molecule as a determination of the disorder.

26. The method of claim 25 wherein the agent is a nucleic acid molecule comprising a molecule having a nucleotide sequence set forth as SEQ ID NO:42, fragments thereof, and complements thereof.

27. The method of claim 25, wherein the agent comprises a nucleic acid molecule having the nucleotide sequence of SEQ ID NO:42 or a fragment thereof.

28. The method of claim 25, wherein the biological sample is isolated from a non-testis tissue.

29. The method of claim 25 wherein the interaction is determined by amplifying at least a portion of the nucleic acid molecule.

30. A method for diagnosing a disorder characterized by expression of a tumor associated polypeptide, comprising:
contacting a biological sample isolated from a subject with an agent that binds the tumor associated polypeptide as claimed in claim 17 or claim 18, and
determining binding between the tumor associated polypeptide and the agent as a determinant of the disorder.

31. The method of claim 30, wherein the tumor associated polypeptide is a polypeptide encoded by the nucleotide sequence set forth as SEQ ID NO:42 and fragments thereof.

32. The method of claim 30, wherein the agent is an antibody or fragment thereof.

33. A method for treating a subject with a disorder characterized by expression of a tumor associated nucleic acid as claimed in claim 1, comprising
administering to the subject an effective amount of an agent which reduces the expression of the tumor associated nucleic acid, sufficient to ameliorate the disorder.

34. The method of claim 33 wherein the agent which reduces the expression of the tumor associated nucleic acid is an antisense nucleic acid which hybridizes to the tumor associated nucleic acid.

35. A composition comprising:

an antisense nucleic acid which binds to a tumor associated nucleic acid which hybridizes under stringent conditions to a nucleic acid having a nucleotide sequence set forth as SEQ ID NO:42, and reduces the expression of the tumor associated nucleic acid, and a pharmaceutically acceptable carrier.

36. A kit for detecting the presence of the expression of a tumor associated polypeptide precursor comprising a first isolated nucleic acid molecule consisting of a 20-32 nucleotide contiguous segment of SEQ ID NO:42, and a second isolated nucleic acid molecule consisting of a 20-32 nucleotide contiguous segment of the complement of SEQ ID NO:42, wherein the contiguous segments are nonoverlapping.

37. The kit of claim 36, wherein the first and the second isolated nucleic acid molecules are constructed and arranged to selectively amplify at least a portion of an isolated nucleic acid molecule comprising SEQ ID NO:42.

38. A method for treating a subject with a disorder characterized by expression of a tumor associated nucleic acid as claimed in claim 1, comprising
administering to the subject an amount of an agent, which enriches selectively in the subject the presence of complexes of an HLA molecule and a polypeptide encoded by the tumor associated nucleic acid as claimed in claim 1, effective to ameliorate the disorder.

39. The method of claim 38, wherein the disorder is cancer.

40. A method for treating a subject having a condition characterized by expression of a tumor associated antigen encoded by a tumor associated nucleic acid as claimed in claim 1 in cells of the subject, comprising:

(i) removing an immunoreactive cell containing sample from the subject,

(ii) contacting the immunoreactive cell containing sample to a host cell under conditions favoring production of cytolytic T cells against the tumor associated antigen which is a fragment of the precursor,

(iii) introducing the cytolytic T cells to the subject in an amount effective to lyse cells which express the tumor associated antigen, wherein the host cell is transformed or

transfected with an expression vector comprising the isolated nucleic acid molecule of claim 1 operably linked to a promoter.

41. The method of claim 40, wherein the host cell recombinantly expresses an HLA molecule which binds the tumor associated antigen.

42. The method of claim 40, wherein the host cell endogenously expresses an HLA molecule which binds the tumor associated antigen.

43. A method for producing a tumor associated polypeptide comprising
providing a nucleic acid molecule comprising a tumor associated nucleic acid molecule operably linked to a promoter, wherein the tumor associated nucleic acid molecule encodes the tumor associated polypeptide or a fragment thereof, wherein the tumor associated polypeptide comprises SEQ ID NO:42, or a fragment thereof
expressing the nucleic acid molecule in an expression system, and
isolating the tumor associated polypeptide or a fragment thereof from the expression system.